(P/N: 41NE-IN100000-A00)

USER'S MANUAL

Inverter / Charger

IP-Inverter-13

General Precautions

1. Before using Inverter/Charger, read all instructions and cautionary markings on : (1) Inverter/Charger (2) the batteries (3) this manual
2. **CAUTION** --To reduce risk of injury, charge only lead-acid type rechargeable batteries. Other types of batteries may cause damage and injury.
3. Do not expose Inverter/Charger to rain, snow or liquids of any type. Inverter/Charger is designed for indoor.
4. Do not disassemble Inverter/Charger. Take it to a qualified service center when service or repair is required.
5. **WARNING:** Provide ventilation to outdoors from the battery compartment. The battery enclosure should be designed to prevent accumulation and concentration of hydrogen gas at the top of the compartment.
6. **NEVER** charge a frozen battery.
7. Be extra cautious when working with metal tools around batteries. Short-circuiting the batteries could cause an explosion.
8. For battery installation and maintenance: read the battery manufacturer's installation and maintenance instructions prior to operating.

Personnel Precautions

1. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
2. Avoid touching eyes while working near batteries.
3. Never smoke or allow a spark or flame in vicinity of a battery.
4. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with batteries. Batteries can produce a short-circuit current high enough to make metal melt, and could cause severe burns.
5. If a remote or automatic generator start system is used, disable the automatic starting circuit or disconnect the generator to prevent accident during servicing.

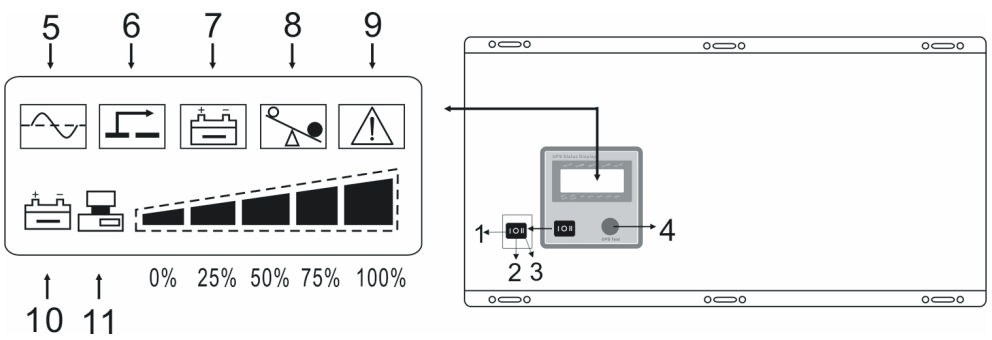
Specification

MODEL			**IN1000**	**IN1500**	**IN2000**	**IN3200**
CAPACITY	VA / Watts		1000VA / 600W	1500VA / 900W	2000VA / 1200W	3200VA / 2000W
INPUT	AC Voltage		115VAC / 230VAC, 1 Phase + Neutral			
	Voltage Tolerance (AC)		90~135VAC / 187~264VAC ±4%			
	DC Voltage		12VDC		24VDC	
	Voltage Tolerance (DC)		10VDC ~ 14VDC		20VDC ~ 28VDC	
	Frequency		47Hz ~ 53Hz / 57Hz ~ 63Hz			
OUTPUT	Voltage		115VAC / 230VAC			
	Voltage Tolerance		±7%			
	Frequency		50Hz or 60Hz			
	Frequency Tolerance		±3Hz in Battery Mode			
	Transfer Time		Maximum 10 milliseconds			
	Voltage Waveform		Modified Sinewave			
BATTERY	Type		Maintenance free dry type (suggested)			
	Capacity		Up to 1000Ah			
	Battery Low Level		10.8V ±0.2V		21V ±0.5V	
	Battery Cut-off Level		10V ±0.2V		20V ±0.5V	
	Battery house		External; Rack or Cabinet (Optional)			
CHARGER	Battery Charge Voltage		13.6VDC ±0.2VDC		27.5V ±0.3V	
	Charge Capacity		40A max. (Adjustable)			
	Over Charge Protection		14.5VDC ±0.5VDC		29V ±0.5V	
INDICATORS & CONTROL PANEL	Control Panel		On/Off button, Battery charge current adjustment			
	Indicators	Line Mode	Line-On LCD lighting			
		Battery Mode	Back-Up LCD lighting			
		Over Load	O-Load LCD lighting			
		Over Temp.	O-Temp LCD lighting			
		UPS Off	Cut-Off LCD lighting			
		Load Level	5-Step LCD lighting			
		Battery Level	5-Step LCD lighting			
PROTECTION	Full Protection		Over load, Short circuit, Over charge, Over temperature, Input & Output fuse			
	Noise Level		Less than 45 dBA (at 1 meter)			
	Operating Temperature		0℃ ~ 40℃			
	Storage Temperature		-20℃ ~ +70℃			
	Relative Humidity		Maximum 0-90% (non-condensing)			
	Type of Cooling		Forced with fan			
	Installation Height		<3000 meters, elevation			
PHYSICAL	Dimension, D*H*W		420*160*218mm			
	Weight, w/o Battery		11kgs	14kgs	16kgs	20kgs
DESIGN, MANUFACTURE, SERVICES			ISO 9001			

Operation

Front Panel Controls and LCD Indicators

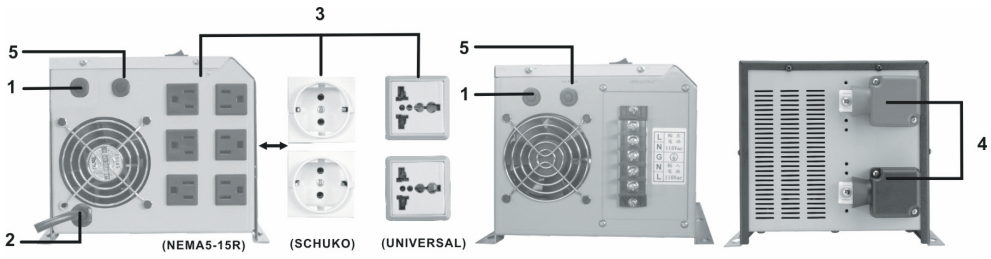
Shown below are the controls and indicator lights on the front of Inverter/Charger.



1. Power On: Please make sure the battery connection before you turn on the Inverter/Charger
2. UPS Off
3. Charger Only
4. UPS Test Switch**:** When UPS is working under AC mode, it also activates the UPS's self-test by press the bottom.
5. Line-On: AC Normal
6. O-Temp. : If the UPS is over temperature, the light will turn on and the alarm will sound continuously.
7. Back-Up: Battery in back-up
8. Over Load: If the UPS is overloaded, the light will turn on and the alarm will sound continuously
9. UPS Cut-Off: Overload or Cut-off
10. Battery Level: A bar graph showing how much of the UPS battery is being used.
11. Load Level: A bar graph showing how much of the UPS power is being used.

Back Panel Description

Shown below are the components on the back of Inverter/Charger.



1. Input Breaker
2. AC Input Connector
3. Output Receptacle(s)
4. DC Input Connector (Battery Terminal)
5. Output Breaker

Battery Connection

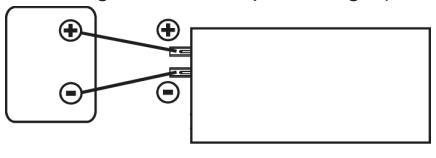
Step 1. Connect to 12V(24V) battery. "+" is positive, "-" is negative. Reverse polarity connection will blow internal fuse and may damage inverter permanently.(See Specification)

Step 2. DC to AC inverters require high amperage / low voltage DC power to low amperage / high voltage AC power. To operate properly connect inverter DC input terminals direct to battery with heaviest wire available **(no more than 100cm)**, see chart below:

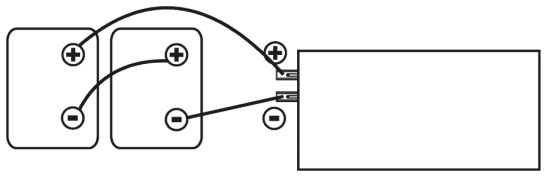
Model	DC Input Voltage	Max. Watts Out	Approx. Amps Req'd	Wire Gauge
IN1000	12V	600W	85A	8AWG*2
IN1500	12V	900W	125A	4AWG*2
IN2000	24V	1200W	85A	8AWG*2
IN3200	24V	2000W	140A	2AWG*2

Step 3. Connect battery cables to your batteries

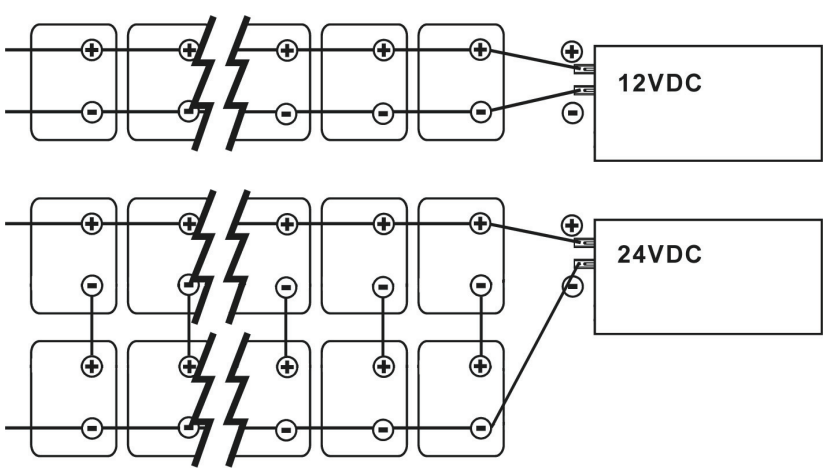
- Single battery connection: When using a single battery, its voltage must be equal to the voltage of Inverter/Charger Nominal Input Voltage (see specs)



- Series battery connection: When using multiple batteries in series, all batteries must be equal in voltage and amp hour capacity, and the sum of their voltages must be equal to the voltage of Inverter/Charger Nominal Input Voltage (see specs)



- Parallel battery connection: When using multiple batteries in parallel, each battery's voltage must be equal to the voltage of Inverter/Charger Nominal Input Voltage (see specs)



Step 4.

※ Charger Current Switch: You can adjust the position of Dip Switch to adjust charging currency of battery.

Introduction

The Device is a DC-to-AC inverter with auto line-to-battery transfer and integrated charging system, serving as an extended run UPS, a standalone power source or an automotive inverter.

Inverter/Charger supplies power from AC power and DC source. When AC cable is connected to a wall socket, utility power goes to connected equipment(s) and/or charges the battery set via charging system. In UPS mode, Inverter/Charger automatically convert battery energy into AC power for backing up the connected devices.

Features:

- ✓ 30Amp built in powerful smart charger for long backup time and extended battery life.
- ✓ High efficiency and low idle current to keep low operating costs.
- ✓ Quiet operation, heavy duty reliability.
- ✓ Ecologically smart and user friendly.
- ✓ Back-up, on-line, battery status, power status by LCD display.
- ✓ Short circuit and overload protection.
- ✓ Cold start (DC power on).
- ✓ Advanced battery management (ABM).
- ✓ Charging current can be adjusted by selector.